

AMENDMENTS TO THE CLAIMS

The below listing of claims replaces all prior versions of claims in the application.

Listing of Claims:

1. (Currently Amended) A steering system for pivoting an outboard motor mounted on a stern of a boat ~~and, said outboard motor~~ having an internal combustion engine disposed inside of and fixed with respect to an engine cover at its upper portion and a propeller with a rudder at its lower portion powered by the engine to propel and steer the boat, comprising:

a swivel shaft ~~connected to the propeller to turn the propeller relative to the boat~~ installed in the outboard motor;

an actuator connected to the swivel shaft to rotate the swivel shaft; and

a swivel case rotatably accommodating the swivel shaft, the swivel case being formed with a recess having a box-like shape to accommodate the actuator therein in such a manner that the actuator does not project outside a profile of the outboard motor for all possible steered angles of the outboard motor, wherein said profile is obtained by looking down the outboard motor from above in the vertical direction.

2. (Original) A system according to claim 1, wherein the actuator is accommodated in the recess in such a manner that a longitudinal direction of the actuator is positioned on a diagonal of a rectangle of the recess.

3. (Currently Amended) A system according to claim 1, wherein the actuator is accommodated in the recess by supports comprising a first support that supports the actuator at ~~its upper portion~~ a head end thereof and a second support that supports the actuator at ~~its lower portion~~ a bottom end thereof.

4. (Original) A system according to claim 1, further including: a rotation angle sensor outputting a signal indicative of an angle of rotation of the swivel shaft; and

a controller controlling operation of the actuator based on at least the signal of the rotation angle sensor; and

wherein the rotation angle sensor is installed in the recess.

5. (Original) A system according to claim 1, further including:

a rotation angle sensor that outputs a signal indicative of an angle of rotation of the swivel shaft; and

a controller that controls operation of the actuator based on at least the signal of the rotation angle sensor; and

wherein the rotation angle sensor is installed around an outer periphery of the swivel shaft.

6. (Original) A system according to claim 5, wherein the rotation angle sensor has a ring-like shape and is installed around the outer periphery of the swivel shaft in such a manner that a center of the rotation angle sensor is made equal to a center of rotation of the swivel shaft.

7. (Original) A system according to claim 5, wherein the rotation angle sensor comprises magnets having a ring-like shape fastened to the outer periphery of the swivel shaft and a detection coil fastened to an inner periphery of the swivel case.

8. (Original) A system according to claim 1, wherein the actuator is a hydraulic cylinder and including:

a hydraulic pressure supplier that supplies hydraulic pressure to the hydraulic cylinder;
and

a hydraulic pressure reliever that relieves hydraulic pressure when change of hydraulic pressure of the hydraulic pressure supplier exceeds a predetermined value.

9. (Original) A system according to claim 8, wherein the hydraulic pressure reliever comprises:

a moving orifice installed in the hydraulic pressure supplier; and
a relief oil path installed in the hydraulic pressure supplier connecting hydraulic pressure to an oil tank.

10. (Previously Presented) A steering system for an outboard motor mounted on a stern of a boat and having an internal combustion engine at its upper portion and a propeller with a rudder at its lower portion powered by the engine to propel and steer the boat, comprising:

a swivel shaft ~~connected to the propeller to turn the propeller relative to the boat~~installed in the outboard motor;

an actuator connected to the swivel shaft to rotate the swivel shaft;

a rotation angle sensor installed around an outer periphery of the swivel shaft and outputting a signal indicative of an angle of rotation of the swivel shaft, wherein the rotation angle sensor has a ring-like shape and is installed around the outer periphery of the swivel shaft in such a manner that a center of the rotation angle sensor is made equal to a center of rotation of the swivel shaft, and further wherein the rotation angle sensor comprises magnets having a ring-like shape fastened to the outer periphery of the swivel shaft and a detection coil fastened to an inner periphery of the swivel case; and

a controller that controls operation of the actuator based on at least the signal of the rotation angle sensor.

11. – 12. (Cancelled)

13. (Previously Presented) A system according to claim 10, further including:

a swivel case rotatably accommodating the swivel shaft and being formed with a recess to accommodate the actuator therein in such a manner that the actuator does not project outside a

profile of the outboard motor, obtained by looking down the outboard motor from above in the vertical direction, regardless of a steered angle of the outboard motor.

14. (Original) A system according to claim 13, wherein the swivel case is formed with the recess having a box-like shape to accommodate the actuator therein in such a manner that a longitudinal direction of the actuator is positioned on a diagonal of a rectangle of the recess.

15. (Previously Presented) A system according to claim 13, wherein the actuator is accommodated in the recess by supports comprising a first support that supports the actuator at its upper portion thereof and a second support that supports the actuator at its lower portion thereof.

16. (Original) A system according to claim 10, wherein the actuator is a hydraulic cylinder and including:

a hydraulic pressure supplier that supplies hydraulic pressure to the hydraulic cylinder;
and

a hydraulic pressure reliever that relieves hydraulic pressure when change of hydraulic pressure of the hydraulic pressure supplier exceeds a predetermined value.

17. (Original) A system according to claim 16, wherein the hydraulic pressure reliever comprises:

Application No. 10/780,065
Art Unit: 3617

Amendment under 37 C.F.R. §1.111
Attorney Docket No.: 042093

a moving orifice installed in the hydraulic pressure supplier; and
a relief oil path installed in the hydraulic pressure supplier connecting hydraulic pressure
to an oil tank.

18. – 26. (Cancelled)